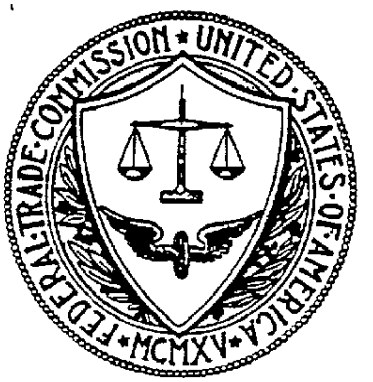

Federal Trade Commission

TAR, NICOTINE, AND CARBON MONOXIDE OF THE SMOKE OF 568 VARIETIES OF DOMESTIC CIGARETTES

1993

Report of "Tar," Nicotine, and Carbon Monoxide of the Smoke of 568 Varieties of Domestic Cigarettes

This report contains data on the "tar," nicotine, and carbon monoxide content of 568 varieties of cigarettes manufactured and sold in the United States. The test results were submitted to the Federal Trade Commission (FTC) by the six largest cigarette manufacturers in the United States. These companies are the following: The American Tobacco Company; Brown & Williamson Tobacco Corporation; Liggett Group, Inc.; Lorillard, Inc.; Philip Morris, Inc.; and R. J. Reynolds Tobacco Company, Inc.

The Tobacco Institute Testing Laboratory (TITL), a private laboratory operated by the cigarette industry, conducted most of the "tar," nicotine and carbon monoxide tests for these 568 varieties. The methodology, processes and procedures that the six cigarette companies and TITL employ are identical to those the Commission, in its own testing lab, had followed in the past.[1] Harold Pillsbury, the former director of the FTC laboratory and currently a contractor to the Commission, was given unrestricted access to the TITL laboratory for the purpose

[1]The Commission determined in early 1987 to close its laboratory. The Commission found that closing the laboratory was necessary for several reasons. First, the operation of a highly complex testing program, even one limited to "tar", nicotine and carbon monoxide, was incompatible with the expertise of the agency. Secondly, the cost of the laboratory was significant, and the Commission would have had to commit significant additional funds in order to continue the program. Finally, the Commission was persuaded that the same information could be obtained from other sources, and other means were available to verify the accuracy of industry testing results.

of reviewing the testing methodology and protocols used by the TITL and for monitoring the actual testing process.

TITL provided the results to the respective cigarette companies. The companies provided the data generated by TITL regarding their own brands to the FTC in response to compulsory process issued by the Commission requiring submission of this information. Generic and private label cigarettes, as well as new or not widely available brands, were not tested by TITL. These test results were supplied to the Commission by the manufacturer, pursuant to compulsory process. Results of such non-TITL testing are indicated by single asterisks for new and not widely available brands, and double asterisks for generic and private label brands.

The cigarettes were tested either by TITL or the manufacturers using the Cambridge Method. This methodology has been approved by the FTC and used as the standard for cigarette testing since 1966. Submitters of data have verified that the testing was conducted in accordance with the conditions prescribed by the FTC in the Federal Register, Volume 32, Number 147, Page 11178, dated August 1, 1967. Conditions for the testing of carbon monoxide content are specified in the Federal Register, Volume 45, Number 134, Page 46483, dated July 10, 1980. The conditions prescribed in the FTC's 1967 announcement are the following:

1. Smoke cigarettes to a 23mm. butt length, or to the length of the filter and overwrap plus 3mm. if in excess of 23mm.;
2. Base results on a test of 100 (± 10%) cigarettes per brand, or type;
3. Cigarettes to be tested will be selected on a random basis, as opposed to "weight selection;"
4. Determine particulate matter on a "dry" basis employing the gas chromatography method published by C.H. Sloan and B.J. Sublett in Tobacco Science 9, page 70, 1965, as modified by F.J. Schultz' and A.W. Spears' report published in Tobacco Vol. 162, No. 24, page 32, dated June 17, 1966, to determine the moisture content;
5. Determine and report the "tar" content after subtracting moisture and alkaloids (as nicotine) from particulate matter;
6. Report "tar" content to the nearest whole milligram and nicotine content to the nearest 1/10 milligram, (32 Fed. Reg. 11178 (1967)).

The 1980 FTC announcement contained specifications regarding a new testing methodology to be used in determining the carbon

monoxide (CO) and nicotine content of cigarettes. These specifications are the following:

1. Determine CO concentration using a 20-port sequential smoking machine described by H.C. Pillsbury and G. Merfeld at the 32nd Tobacco Chemists Research Conference, October, 1978; or other 20-port smoking machine capable of collecting the gasses, and determining the CO using an IR Detector, such as the Filtroma SM 350;
2. The concentration of CO will be reported as milligrams per cigarette;
3. The present method for "tar" and nicotine determination will be modified to use the method described in an article entitled, "Gas Chromatographic Determination of Nicotine Contained on Cambridge Filter Pads," by John R. Wagner et al., as presented at the annual meeting of the Association of Official Analytical Chemists, October 1978. (45 Fed. Reg. 46483 (1980)).

TITL reported, and the FTC's contractor confirmed, that the cigarettes it tested were obtained by an independent company under contract to TITL. Under its contract with TITL, this

company was to purchase two packages of every variety of cigarettes manufactured and distributed in 50 geographical locations throughout the United States. If not all varieties were available in every location, one or more additional packages of cigarettes were purchased in the areas where the respective varieties were available. This procedure of selecting cigarettes for testing replicates the one used by the FTC. Cigarettes utilized in the test represented 367 varieties of the cigarettes sold in the U.S. at the time of the purchase (1991). The additional 201 brands in this report are either generic brands, private label cigarettes or those not readily available in the United States. These 201 brands of cigarettes were tested by the manufacturers using the same methodology described above. However, the companies do not obtain the samples of the generic brands, private label cigarettes or those not readily available in the United States from a random selection from the marketplace, but from random manufacturing batches.

The "tar" and carbon monoxide figures are rounded to the nearest milligram (mg.). Those figures with 0.5 mg. or greater are rounded up, while those with 0.4 mg. or less are rounded down. The nicotine figures are rounded to the nearest tenth of a milligram. Those with 0.05 mg. or greater are rounded up; those with 0.04 mg. or less are rounded down.

Cigarette brands with assay results of "tar" and carbon monoxide below 0.5 mg. per cigarette variety and of nicotine below 0.05 mg. are recorded in the table as <0.5, and <0.05 respectively. The table does not differentiate, nor are actual "tar" ratings provided for these cigarettes, because the currently approved testing methodology is not sufficiently sensitive to report these components at lower levels.